What is claimed is:

1. A permanent magnet motor assembly, comprising:

a stator;

a rotor having an end proximate the stator, the rotor rotating about an axis;

a magnet positioned along a length of the rotor and having a proximal end positioned near the stator; and

a shield covering the proximal end of the magnet to reduce magnetic field leakage between the proximal end of the magnet and the stator.

2. The permanent magnet motor assembly of claim 1, wherein the stator is configured and arranged to receive a coil.

3. The permanent magnet motor assembly of claim 2, wherein the stator includes a groove for receiving the coil.

4. The permanent magnet motor assembly of claim 2, wherein the rotor extends around the coil.

5. The permanent magnet motor assembly of claim 1, wherein the shield is made of magnetic steel.

6. The permanent magnet motor assembly of claim 1, wherein the shield

comprises a cup extending around the proximal end of the magnet and against the rotor.

7. The permanent magnet motor assembly of claim 1, wherein the shield comprises a snap-fit ring.

8. The permanent magnet motor assembly of claim 7, wherein the snap-fit ring is made of spring steel.

9. The permanent magnet motor assembly of claim 1, wherein the rotor includes a first rotor section and a second rotor section, the first rotor section being positioned radially inside the second rotor section relative to the axis.

10. The permanent magnet motor assembly of claim 9, wherein the magnet is attached to the second rotor section.

11. A permanent magnet motor assembly, comprising:

a stator including a coil and having a cut-out section in which the coil is received and suspended;

a rotor having an end proximate the stator, and including a first rotor section and a second rotor section rotating about an axis, wherein the coil is positioned between the first and second rotor sections;

a magnet having a proximal end near the stator and positioned

lengthwise along the second rotor section to thereby rotate about the coil; and

a shield covering the proximal end of the magnet to reduce magnetic field leakage between the proximal end of the magnet and the stator.

12. The permanent magnet motor assembly of claim 11, wherein the shield is made of magnetic steel.

13. The permanent magnet motor assembly of claim 11, wherein the shield comprises a cup extending around the proximal end of the magnet and against the rotor.

14. The permanent magnet motor assembly of claim 11, wherein the shield comprises a snap-fit ring.

15. The permanent magnet motor assembly of claim 14, wherein the snap-fit ring is made of spring steel.

16. A permanent magnet motor assembly, comprising:

a stator including a coil and having a cut-out section in which the coil is received and suspended;

a rotor having an end proximate the stator, and including a first rotor section and a second rotor section rotating about an axis, wherein the coil is positioned between the first and second rotor sections;

a plurality of magnets, each magnet having a proximal end near the stator and positioned lengthwise along the second rotor section to thereby rotate about the coil; and

a shield covering the proximal end of each magnet to reduce magnetic field leakage between the proximal end of each magnet and the stator.

17. A method of reducing magnetic field leakage in a motor assembly, the motor assembly including a stator and a rotor having an end proximate the stator, the method comprising the steps of:

positioning a magnet along a length of the rotor, the magnet having a proximal end positioned near the stator;

rotating the rotor about an axis; and

covering the proximal end of the magnet with a motor shield to reduce magnetic field leakage between the proximal end of the magnet and the stator.

18. The method of claim 17, wherein the motor shield is made of magnetic steel.

19. The method of claim 17, wherein the motor shield is a cup extending around the proximal end of the magnet and against the rotor.

20. The method of claim 17, wherein the motor shield is a snap-fit ring.

21. The method of claim 20, wherein the snap-fit ring is made of spring steel.

22. A method of reducing magnetic field leakage in a motor assembly, the motor assembly including a stator with a coil suspended therein, and a rotor having first and second rotor sections and an area for receiving the coil, the method comprising the steps of:

positioning a magnet lengthwise along the rotor for generating a magnetic field, the magnet having a proximal end positioned near the stator;

rotating the rotor about an axis; and

covering the proximal end of the magnet with a motor shield to reduce magnetic field leakage between the proximal end of the magnet and the stator.

23. The method of claim 22, wherein the motor shield is made of magnetic steel.

24. The method of claim 22, wherein the motor shield is a cup extending around the proximal end of the magnet and against the rotor.

25. The method of claim 22, wherein the motor shield is a snap-fit ring.

26. The method of claim 25, wherein the snap-fit ring is made of spring steel.

27. A method of reducing magnetic field leakage in a motor assembly, the motor assembly including a stator with a coil suspended therein, and a rotor having first and second rotor sections and an area for receiving the coil, the method comprising the steps of:

positioning a plurality of magnets lengthwise along the rotor for generating a magnetic field, each magnet having a proximal end positioned near the stator;

rotating the rotor about an axis; and

covering the proximal end of each magnet with a motor shield to reduce magnetic field leakage between the proximal end of each magnet and the stator.